

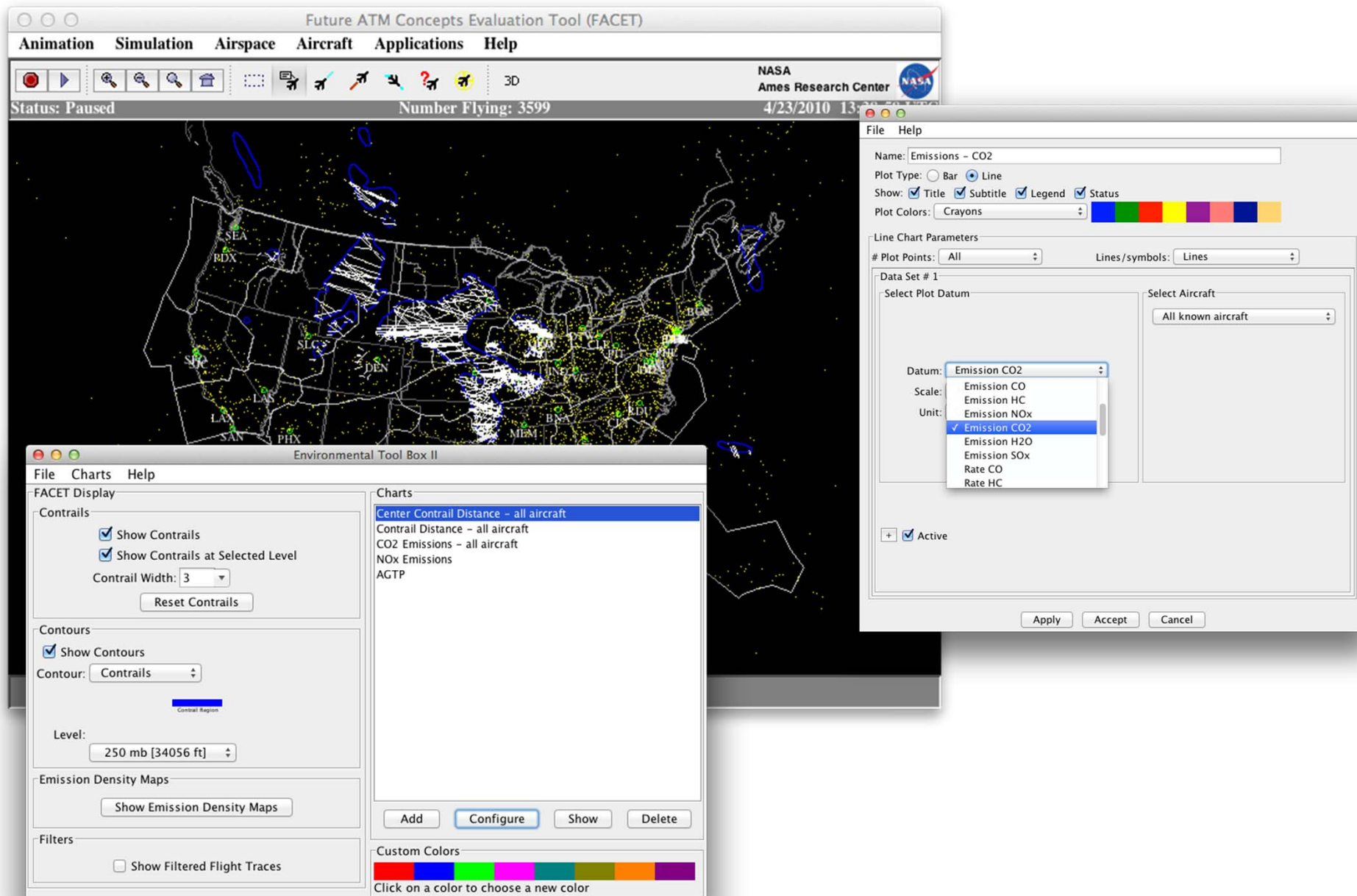
Modeling and Simulation of Aviation Environmental Impact

Neil Chen, Banavar, and Jinhua Li

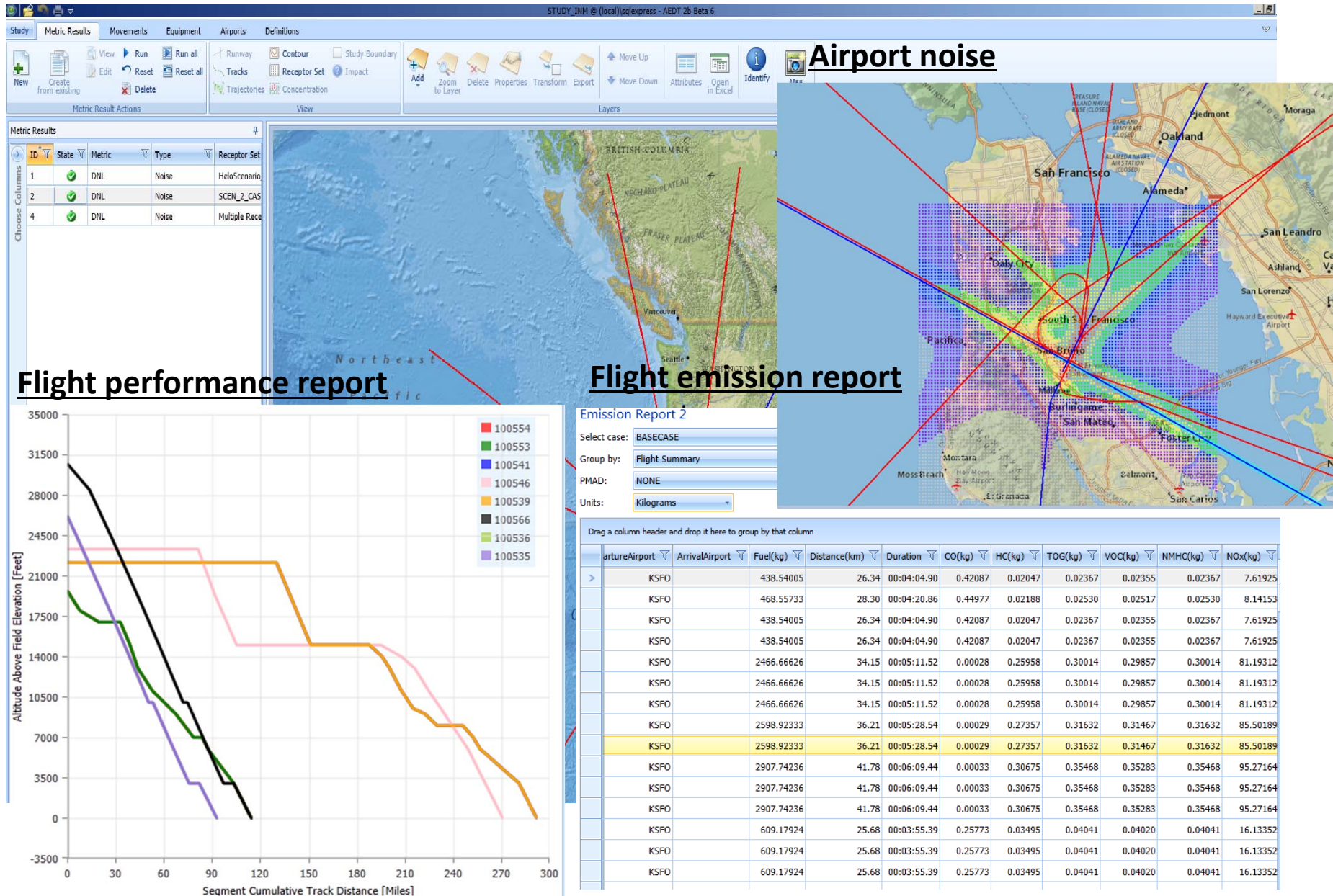
Objectives

- Develop simulation methods and software to assess environmental / climate / economic impacts of various aviation activities
- Integrate NASA's flight simulation software with FAA's Aviation Environment Design Tool (AEDT)

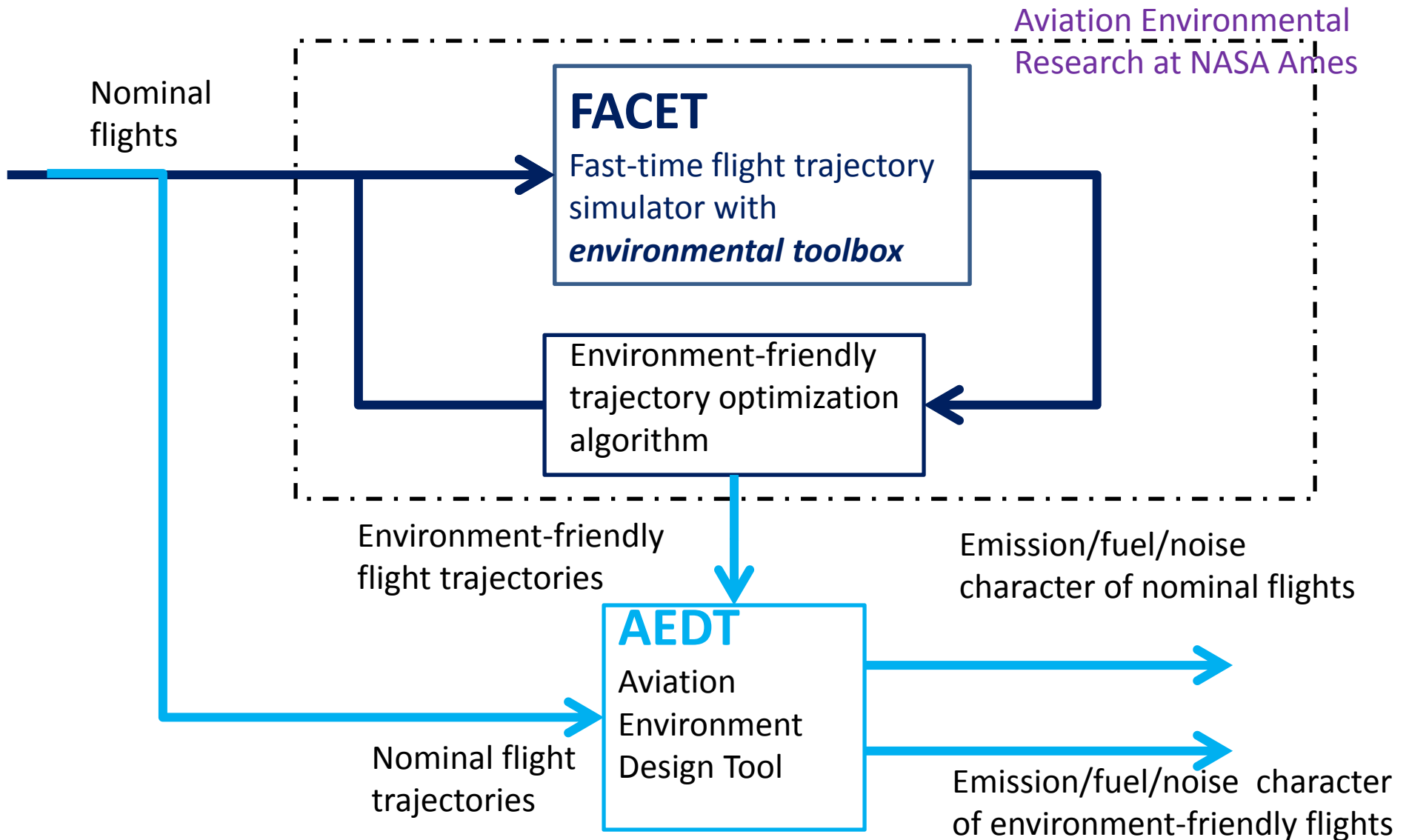
FACET Environmental Toolbox



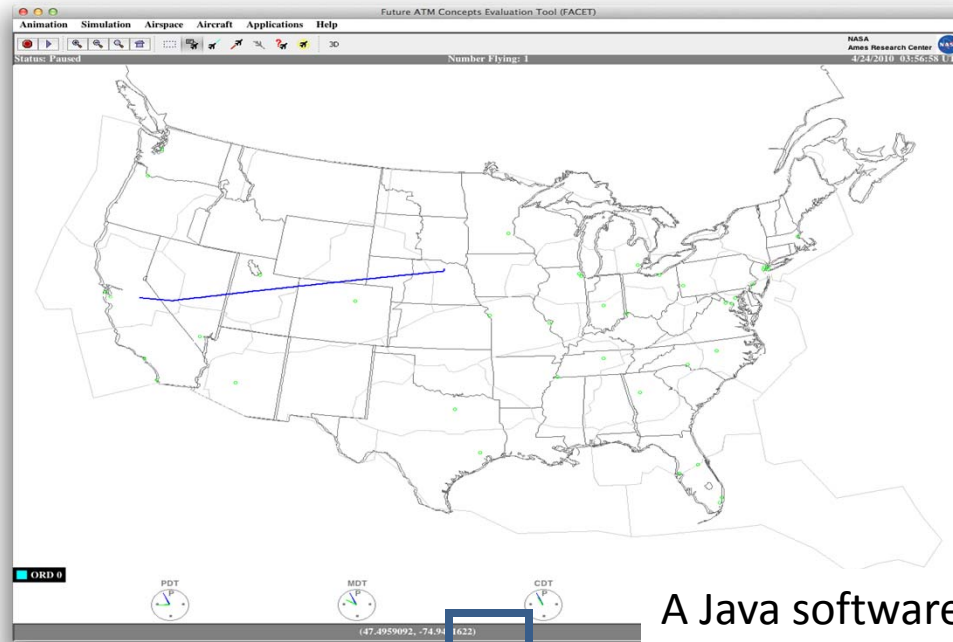
Aviation Environment Design Tool



FACET and AEDT Integration

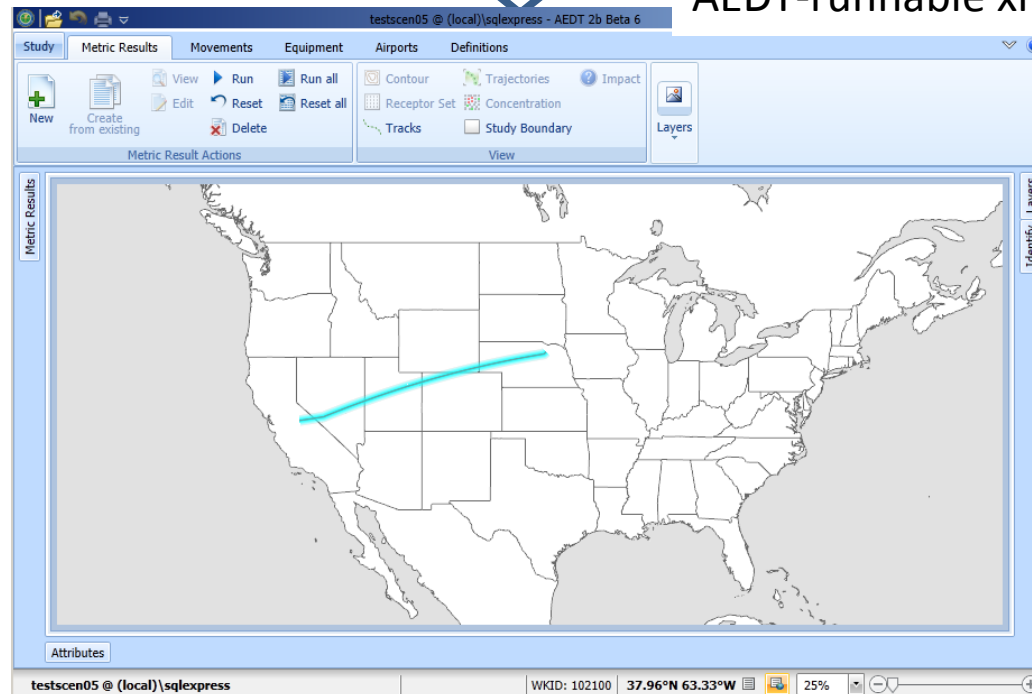


FACET User Interface



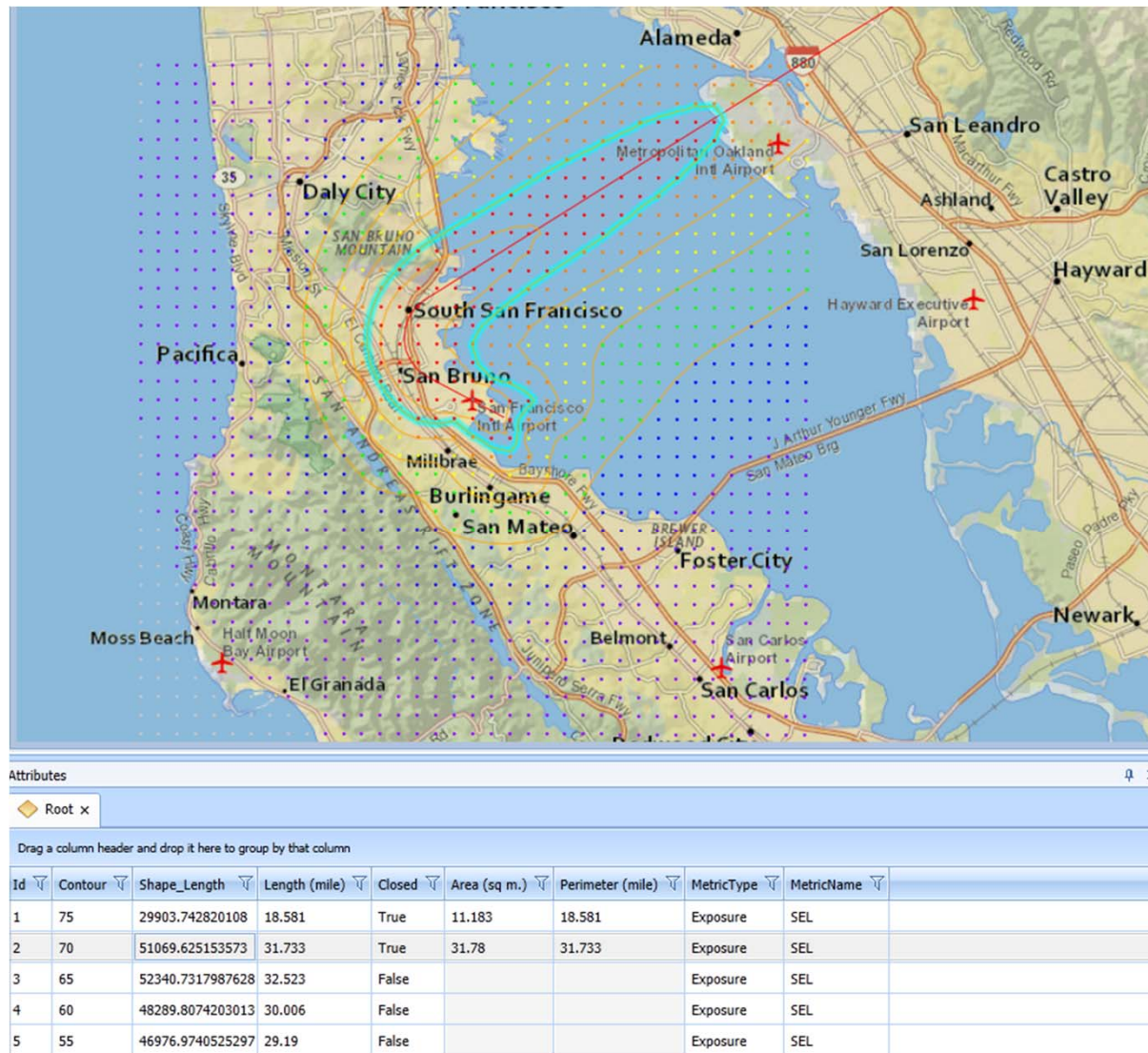
A Java software tool developed to
convert FACET flight track file into
AEDT-runnable xml file

AEDT User Interface



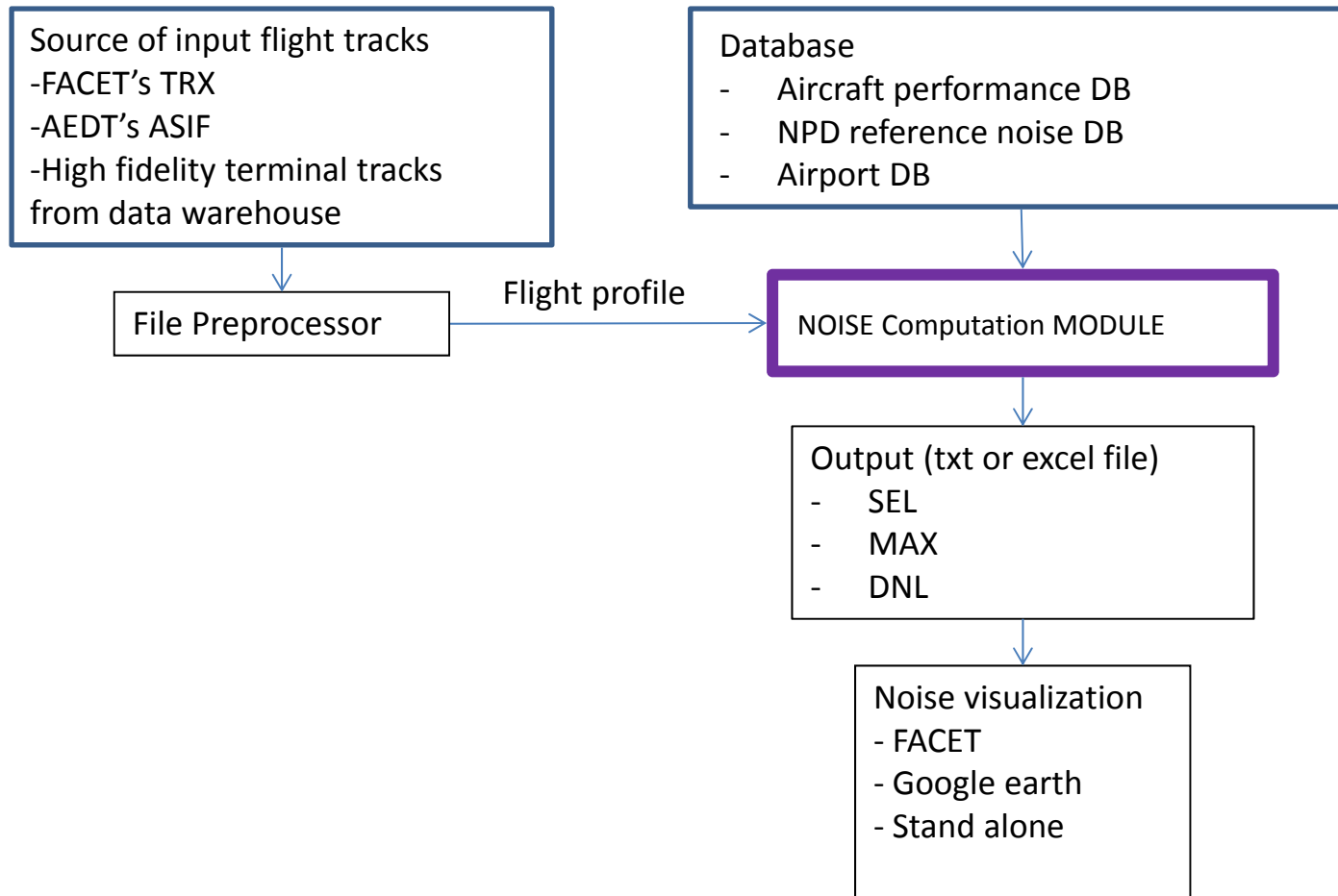
Noise - AEDT

A Boeing 757 single-op departure sound exposure (SEL) at SFO

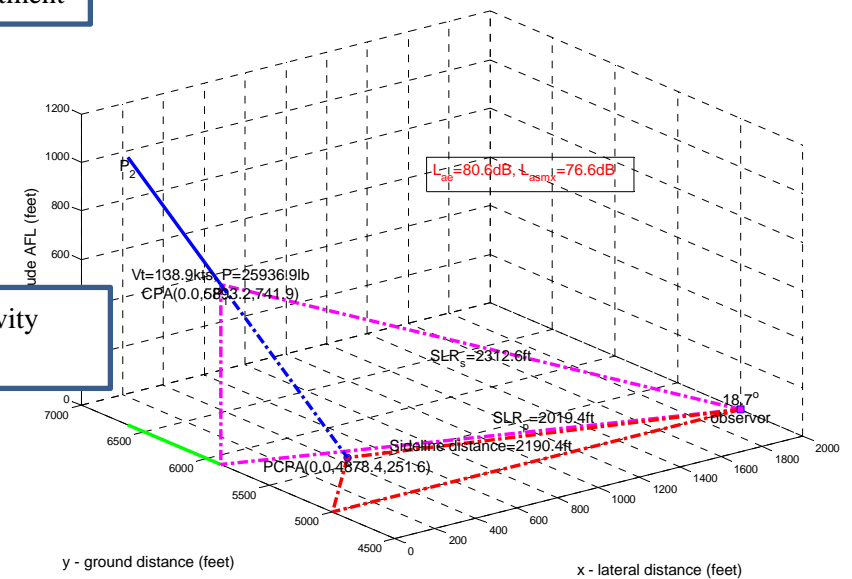
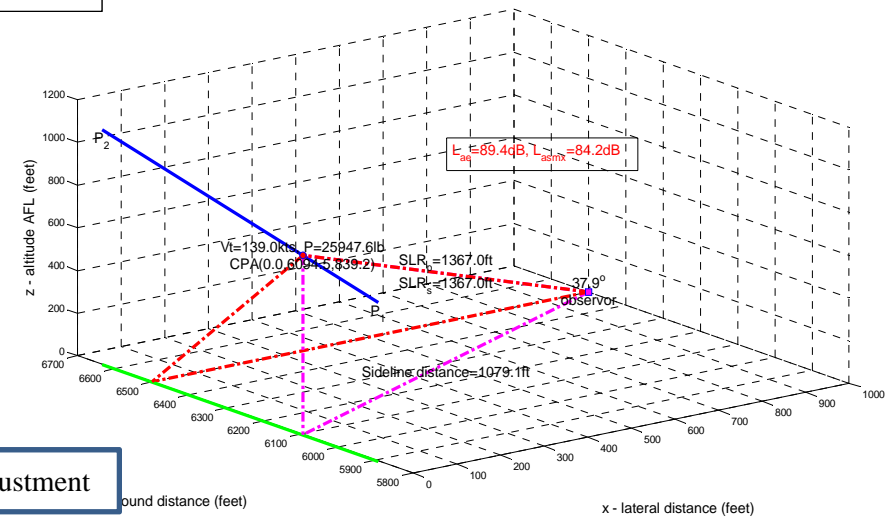
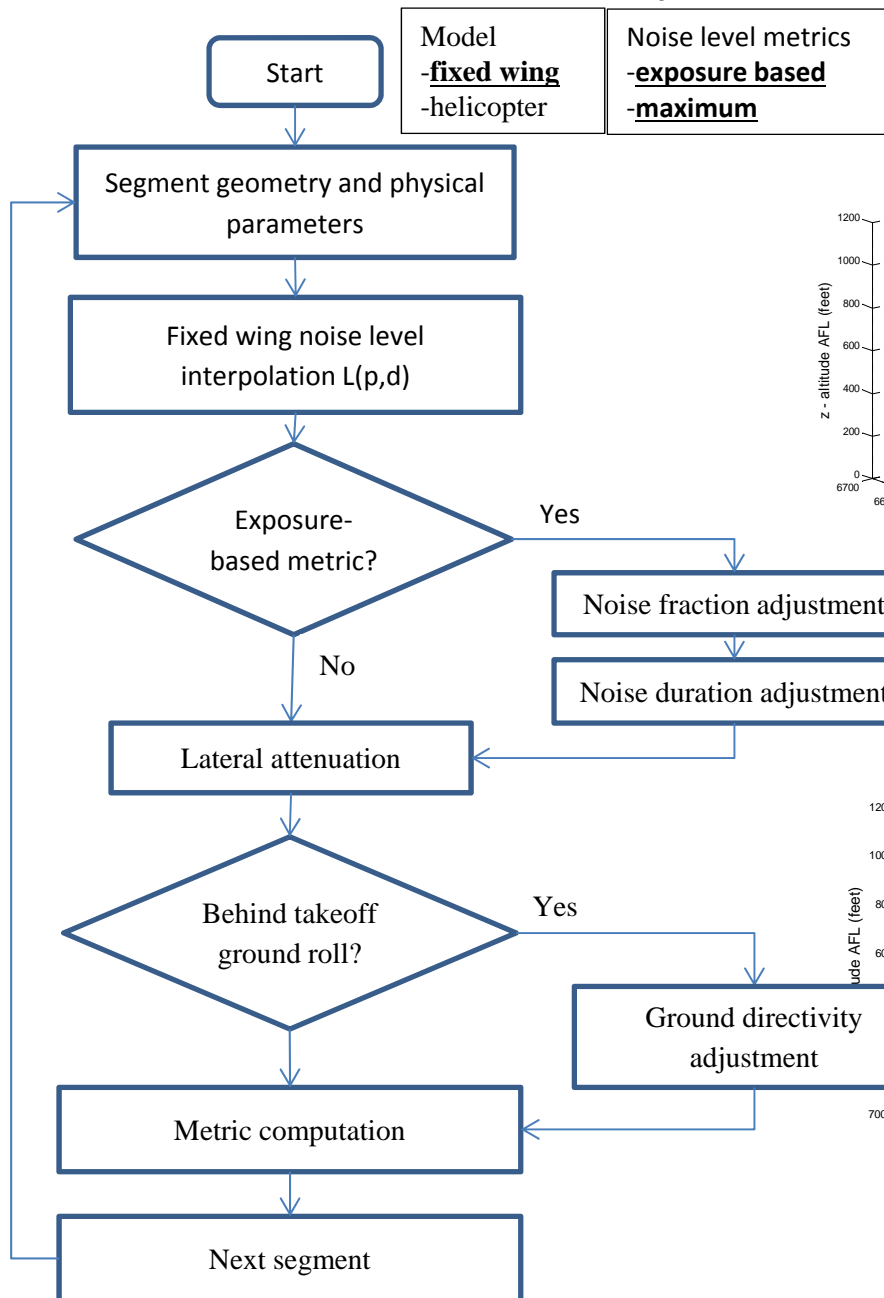


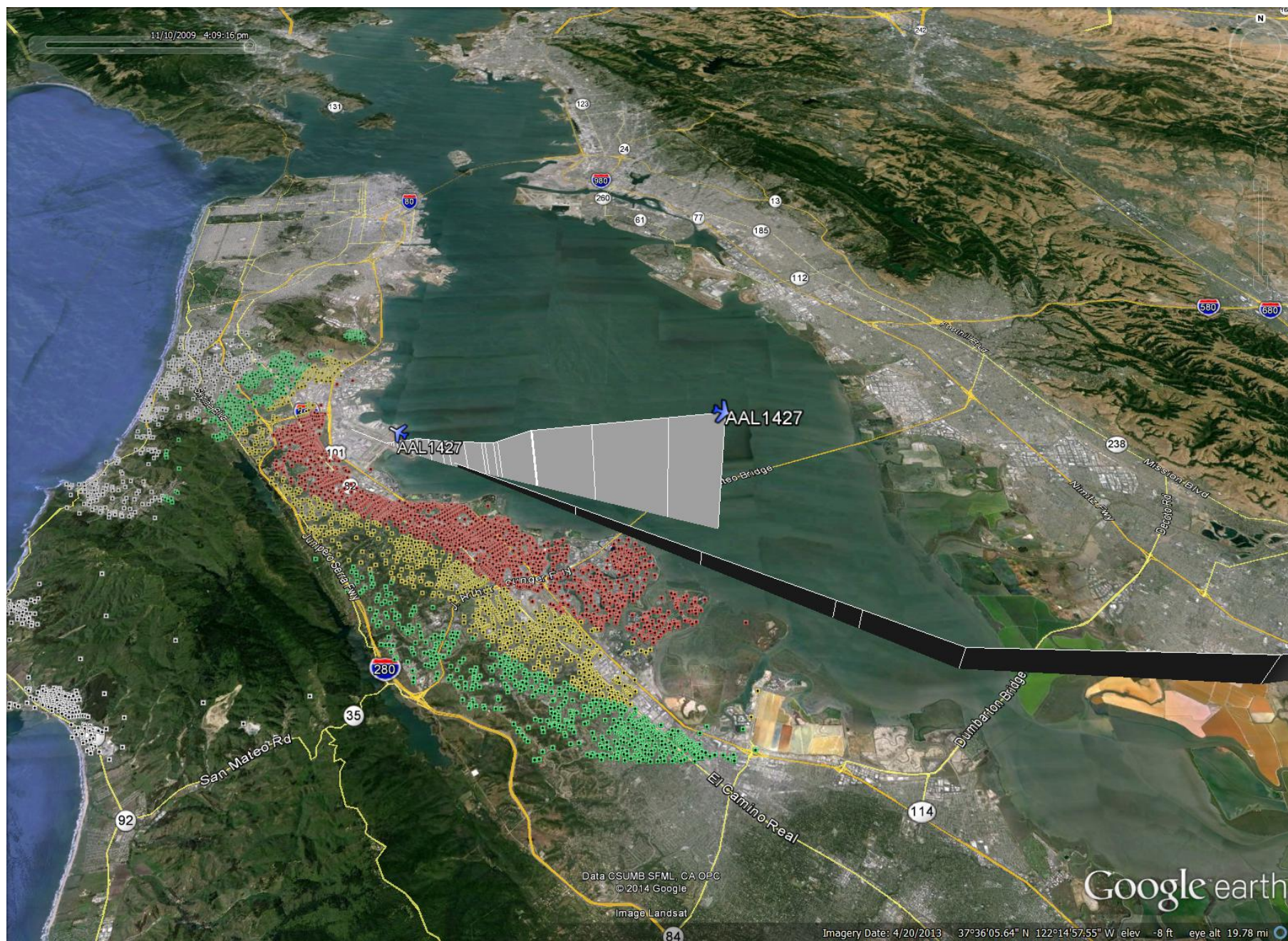
On-going development

Build a computationally efficient noise model



Noise Computation Module





Conclusions

- Developed computationally-efficient fuel/emission/noise models and validated the models with AEDT
- Continue to work on computational-efficient Aircraft/Airport noise model